

REMARKS

Claims 6-78 are pending in the application.

Claims 1-5 have been cancelled in light of the Claim Objections discussed with the Examiner September 23, 2004, and noted at p. 2 in the present Office Action.

Claims 24-78 have been cancelled in light of the Restriction Requirement discussed with the Examiner September 23, 2004, and noted at pp. 2-4 in the present Office Action.

Claims 6-23 stand rejected.

Claims 6-7, 9, 13 and 19 have been amended.

Claims 79-85 have been added.

Allowable Subject Matter

Claims 12-23 stand objected to as being dependent upon rejected base claims. Claims 79-85 have been added. Claims 79-85 incorporate the subject matter of the corresponding base claims and, variously, those of claims 12-23, and are allowable for at least this reason.

Claim Objections

The numbering of claims was heretofore not in accordance with 37 CFR 1.126, which requires the original numbering of the claims to be preserved throughout the prosecution. Applicants have renumbered the claims per the Claim Objections on p. 2 of the present Office Action. Applicants respectfully assert that these Claim Objections are addressed thereby.

Restriction Requirement

The Examiner has required restriction to one of the following inventions under 35 U.S.C.

§ 121:

Group I. Claims 6-23, drawn to network management architecture, classified in class 370, subclass 254.

Group II. Claims 24-31, drawn to method for centralized control by creating authoritative topology database, classified in class 370, subclass 254.

Group III. Claims 32-42, drawn to method for determining a topology including the features of updating and comparing hop counts, classified in class 370, subclass 254.

Group IV. Claims 43-50, drawn to method for maintaining topology information with the feature of comparing information in the master node with backup database, classified in class 370, subclass 254.

Group V. Claims 51-59, drawn to method for adding a path with path discovery, classified in class 370, subclass 254.

Group VI. Claims 60-66, drawn to method for deleting a path with deletion request, classified in class 370, subclass 254.

Group VII. Claims 67-78, drawn to method for changing a path with connectivity change request, classified in class 370, subclass 254.

In response to the Examiner's restriction requirement, the applicants hereby elect, without traverse, to prosecute claims 6-23, drawn to network management architecture, classified in class 370, subclass 254.

Please cancel claims 24-78 without prejudice to the subject matter disclosed therein.

Rejection of Claims under 35 U.S.C. §112

Claims 6-23 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Application

regards as the invention. Applicants have amended claims 6, 7, 9, 13 and 19 to address these issues.

Moreover, as to the point raised in the Office Action with regard to the recitation of “topology information” in claim 7, and the subsequent recitation of “first topology information” in claims 9 and 10, and of “second topology information” in claim 10, Applicants respectfully submit the following. The “first topology information” recited in claims 9 and 10 refers to topology information maintained by the backup node. The “second topology information” recited in claim 10 refers to topology information maintained by the master node. The “second topology information” maintained by the master node can be the “topology information” recited in claim 7 (i.e., they are one in the same), or can be a separate copy of the topology information maintained by the master node. As recited in claim 10, this allows the master node to update the backup node’s topology information with the master node’s topology information, for example.

In light of the foregoing, Applicants therefore believe that the concerns raised in the Office Action with regard to rejections under 35 U.S.C. §112, second paragraph, have been addressed.

Rejection of Claims under 35 U.S.C. §103

Claims 6-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wong, et al., U.S. Patent No. 5,957,985 (Wong) in view of Uphadya, et al., U.S. Patent No. 5,949,755 (Uphadya). Applicants respectfully traverse this rejection.

While not conceding that the cited reference(s) qualify as prior art, but instead to expedite prosecution, Applicants have chosen to respectfully disagree and overcome this rejection

thereby. Applicants reserve the right, for example, in a continuing application, to establish that one or more of the cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed. In the present amendment, Applicants have canceled claims 1-5 and 24-78 without prejudice or disclaimer of the subject matter recited therein and added new claims 79-85 (which are believed to be allowable for the aforementioned reasons).

Applicants respectfully submit that claims 6-11 are allowable over the cited references for the following reasons. More specifically, Applicants respectfully submit that the cited portions of neither Wong nor Uphadya, alone or in permissible combination, show, teach or suggest, a network management architecture comprising:

a master node, wherein

said master node is one of a plurality of nodes,
each of said nodes is communicatively coupled to another of said nodes by at least
one of a plurality of optical links,
said nodes comprise a network,
said master node is configured to manage said network by virtue of being
configured to perform a network management activity, and
said network management activity comprises at least one of discovery,
implementation, assurance, and restoration, of a virtual path.

as recited in claim 1. As correctly noted in the Office Action, Wong fails to show, teach or suggest the claimed “optical links” and “virtual path”. Wong fails to show, teach or suggest these limitations because Wong is not directed to an information communications network such as that being claimed, but is instead directed to an automobile control system. The controllers in

Wong are simple controller units. Wong's control system and switching mechanisms/operations are likewise simple. Such simplicity is advantageous for control applications such as automobile control systems, from a variety of perspectives, including minimal cost, weight, ease of maintenance, response times and the like. It is therefore not surprising that Wong does not show, teach or suggest that the use of a virtual path, because the use of such information communication techniques would fail to provide any appreciable benefit in the applications to which the disclosure of Wong is directed.

The use of optical networking techniques is similarly out of place in an environment in which Wong's automobile control system would be employed. Optical networking techniques (i.e., the recitation of "optical links") are employed in environments where the vast bandwidth provided by such techniques is needed to move enormous amounts of data from one point to the other. Such is simply not the case in automobile control systems, and particularly with regard to the system of Wong. Not only are the controllers in such systems incapable of transporting such large amounts of data, such controllers have no need to transport such large amounts of data. In the type of information communications networks that need to handle, and are capable of handling such large amounts of data, issues such as minimal cost, weight, ease of maintenance, response times and other issues that are important to automotive applications, simply do not rise to the level of concern seen in automotive control systems.

Conversely, Uphadya is likewise unconcerned with control applications such as those to which the automobile control system of Wong are directed. Uphadya is concerned with the protection of asynchronous transfer mode (ATM) traffic against fiber cuts or other types of transmission media failures in a SONET Ring. (Uphadya, Abstract) More specifically, Uphadya is concerned with the protection of ATM cells. As is known, ATM networks are employed to

convey large amounts of data from one point to another; thus their use of SONET and other high-bandwidth techniques, such as the implementation of working path and protection path combinations. The use of working/protection path techniques provide for the protection of traffic in the case of a failure of the working path (or segment thereof) by providing an alternate path (the protection path). (Uphadya, col. 1, lines 63-66) Uphadya uses such techniques to provide for the protection of ATM cells against transmission media failures. (Uphadya, col. 1, lines 63-67; col. 2, lines 3-7) Thus, not only is Uphadya focused on high-bandwidth information communications networks, Uphadya is narrowly focused on protecting ATM cells from loss due to transmission media failures in ATM networks.

The foregoing is all to say that neither Wong nor Uphadya provide any motivation to combine their disclosures, and one of skill in the art at the time of invention would not have been so motivated, based on their disclosures and/or that person's skill in the art. The techniques in Uphadya are inapplicable to and inappropriate for use in an automobile control system. Applicants are unaware of any use of ATM networks in automotive applications. This should come as no surprise, given the cost, physical size and other characteristics of ATM networking equipment, which make such techniques wholly inappropriate for automotive applications. Moreover, as noted, the amount of data ATM networks are capable of moving far exceed the needs typically encountered in automotive applications. Applicants therefore respectfully assert that one of skill in the art at the time of invention would not have been motivated to combine the disclosures of Wong and Uphadya.

Even if the disclosure of Wong's automobile control system and Uphadya's technique for protecting ATM cells from loss due to transmission media failures were combined, which Applicants maintain one of skill in the art at the time of invention would not have been

motivated to do, the resulting system could not be combined in the manner suggested in the Office Action, and even if combined, would not and could not operate properly. Uphadya's technique is directed to protecting ATM cells, which implies the use of an ATM network of some sort. ATM networks do not have the master controller units disclosed in Wong, but instead are a network of peer nodes. Thus, Wong's master controller unit would not exist in an ATM network.

Moreover, even if Wong's master controller unit were connected to Wong's intelligent components via an ATM network, Wong's intelligent components are not capable of communicating on an ATM network. The simple local controllers used by Wong's intelligent components are not designed to conduct such communications. Again, this comes as no surprise, given that the components being controlled are simple in nature, as is the process of controlling them. Further, an ATM network would not be able to provide a master controller unit the direct control of a component as provided in Wong, because any control signals would have to be communicated over the ATM network. Thus, it can be seen that a number of incompatibilities exist between the disclosures of Wong and Uphadya that would prove most problematic in attempting to combine their disclosures into an automotive control system.

Applicants further note that the "topology information" recited variously in claims 7, 9 and 10, for example, is also not shown, taught or suggested in Wong. This is so because the components and clients in Wong are not designed with the functionality to support the use of such information. In an automotive application, the need for simplicity drives the design of such automobile control systems, as noted above. In the system of Wong, if the local controller of an intelligent component fails, Wong simply switches control from the local controller to the master control unit. No "...discovery, implementation, assurance, [or] ... restoration, of a virtual path"

occurs, nor should such actions be taken, because there is no need for such complexity in the automotive applications envisioned in Wong. In fact, such actions cannot be taken with respect to a virtual path. There is thus no need for the claimed “topology information”, as there is no need to provide functionality to support a virtual path, which would involve the use of such information.

Applicants are thus unable to find, in the cited sections of Wong, the claimed “topology information” shown, taught or suggested. While Wong discusses maintaining a routing table that is used to define which data is passed and shared among active electronic components, enabling the master control unit to facilitate data sharing among other components (Wong, col. 5, line 61, through col. 6, line 14), such a routing table does not contain information regarding the topology of Wong’s automobile control system (i.e., the manner in which nodes are coupled to one another). In the claimed invention, the claimed “topology information” is information that represents the network’s topology (e.g., which nodes are coupled to which other nodes), which is used in supporting the concept of a virtual path. Thus, instead of information regarding which components will simply share data, the claimed invention’s “topology information” allows a determination to be made as to which nodes are capable of communicating with one another. This is a natural outgrowth of the claimed invention’s being directed to the discovery, implementation, assurance, and restoration, of a virtual path. Since such a virtual path can take any one of a number of paths through the network (rather than being constrained to communicating with predetermined ones of those nodes), considerations related to information communications networks (quality-of-service, cost and the like) can be considered in provisioning and restoration of a virtual path. These considerations do not exist in the environment of Wong.

Accordingly, Applicants respectfully submit that each of independent claim 6 clearly distinguish over Wong and Uphadya, taken alone or in permissible combination, with or without skill in the art. Claims 7-23, which dependent upon independent claim 6, can be distinguished for at least the same reasons as independent claim 6, from which they depend. Applicants respectfully request withdrawal of the rejection based upon 35 U.S.C. §103(a). Accordingly, Applicants respectfully submit that claims 6-23 are in condition for allowance.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5084.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **December 1, 2004**.



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Date of Signature

Respectfully submitted,



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